

1737

AMENDMENTS TO THE CLAIMS

The listing below of the claims will replace all prior versions and listings of claims in the present application:

Listing of Claims:

Claim 1 (currently amended): A method of producing a heating element containing essentially molybdenum silicide and alloys thereof, which forms aluminum oxide on its surface, said method comprising the steps of: producing a material that contains substantially $\text{Mo}(\text{Si}_{1-x}\text{Al}_x)_2$ and Al_2O_3 by mixing a mixture of a silicon and a molybdenum compound with an aluminum compound, wherein the silicon and molybdenum compound mixture ~~includes $\text{Mo}(\text{Si}_{1-y}\text{Al}_y)_2$~~ and is mixed with an aluminum compound including at least one of Al_2O_3 or $\text{Al}(\text{OH})_3$, wherein the mixture of a silicon and a molybdenum compound with an aluminum compound includes components that together have a degree of purity corresponding to at least 98%; and reacting the mixture components by at least ~~one~~ one of exothermic reaction and sintering so that exchange reactions take place to form the compounds $\text{Mo}(\text{Si}_{1-x}\text{Al}_x)_2$ and Al_2O_3 , where x lies in the range of 0.4 - 0.6.

Claim 2 (previously presented): A method according to Claim 1, wherein SiO_2 is included in the mixture is a silicate and does not affect symmetry of molybdenum silicide crystal lattice.

1737

Claim 3 (previously presented): A method according to Claim 1, wherein x lies in the range of 0.45 - 0.55.

Claim 4 (previously presented): A method according to Claim 1, including the step of adding at least one of sintering auxiliaries MgO , CaO , SiO_2 and Y_2O_3 to said mixture.

Claim 5 (previously presented): A method according to Claim 1, including the step of partially substituting for molybdenum at least one of Re or W or Nb in the material $\text{Mo}(\text{Si}_{1-x}\text{Al}_x)_2$.

Claim 6 (previously presented): A method according to Claim 5, including the step of replacing molybdenum with W in an amount corresponding to approximately one third.

Claim 7 (currently amended): A method according to claim 1, wherein the ~~heating element input~~ mixture components together have a degree of purity of at least 99% .

Claim 8 (previously presented): A method according to claim 1, including the step of adding to the mixture at least one of the compounds SiO_2 , Si, and MoO_3 .

1737

Claim 9 (previously presented): A method according to claim 1, wherein the mixture of the silicon and the molybdenum compound contains MoO_3 and Al, and at least one of Si and SiO_2 .

Claim 10 (previously presented): A method according to claim 2, wherein the silicate is mullite.

Claim 11 (previously presented): A method according to claim 2, wherein the silicate is sillimanite.

Claim 12 (new): A method according to claim 1, wherein the heating element includes a surface layer of aluminum oxide that is retained after cyclic operation of the heating element between room temperature and 1500°C .